

ABSTRACT OF THE DISCLOSURE

A display image enhancement apparatus and method are disclosed for use in generating additional pixel data from input image data, where a window of input pixel data is used to generate data for an additional pixel to be placed substantially in the center of the window. The display image enhancement apparatus includes memory elements that is capable of receiving a chain of input pixel data and storing at least the window of input pixel data, where the window of input pixels includes a plurality of pixel pairs each of which respectively represents an angle of correlation. The display image enhancement apparatus also includes instant angle detection circuitry capable of receiving the input pixel data stored in the memory elements and determining an instant angle having the highest correlation based on differential values of at least some of the pixel pairs, where a differential value is the difference between the values of pixels in a pixel pair. The display image enhancement apparatus further includes substantial angle detection circuitry capable of determining a substantial angle having the highest correlation based on filtered differential values of at least some of the pixel pairs. Angle confirmation circuitry is provided to determine an interpolation angle based on the instant angle and the substantial angle. The display image enhancement apparatus employs an interpolator that is capable of determining the value of the additional pixel based on the values of pixels in the pixel pair corresponding to the interpolation angle.